HOMEWORK 2 – GROUP 4

1-) In this question, we are asked to consider a data set and observe if the Lipschitz continuity, smoothness and strong convexity holds. I believe these relations are explained properly using course content. Discussion is sufficient.

2-) I believe the proof is incomplete. In the proof, one needs to open the variance relation. When it is opened, one sees that the mean of 2-norm of g(.) is bounded above. Then Using 1a and 1b one can reach the given inequality. Then using $C_0, M_V \ and \ M$from inequalities one can find the values.

3-) I believe there is a missing part in the proof. A similar proof can be found in the first reference of related lecture notes. In the proof they take a mean and sum the terms to cancel out successive ones. By using this, they reach a proof of first relation. However, the second relation is not proved. One can use that series α_k is not L_1. Therefore, it diverges as k tends to infinity. As a result, the second relation tends to 0 as k tends to infinity.